INNOVATION BEYOND MEASURE

YOUR GUIDE TO A REWARDING RESEARCH CAREER AT ETS

Listening. Learning. Leading.
At ETS, \textbf{RESEARCH} is at the heart of everything we do.
Welcome to ETS, where our environment is rich with history, diversity, respect for the scientific process, and opportunity. It’s a great place to work—whether you’re just starting out, or you’re looking to take an established research career to the next level.

At ETS, we take pride in the people who work here and their commitment to providing services that advance educational assessment and education—a commitment that has made ETS the world’s leading educational measurement organization. We’re also proud of the research pioneers—past and present—who have made ETS the innovation destination it has been, and continues to be, today.

When you join ETS, you won’t just work at the same nonprofit organization as the world’s leading scientists in educational measurement, you’ll work with them.

Your future is here. Turn the page and see for yourself—there’s never been a better time to work at ETS!
ETS in the Beginning

It all started with a single concept.

In 1947, Henry Chauncey brought to life a concept proposed a decade earlier by Harvard University President James Conant—that a single entity devoted to research and testing could “make fundamental contributions to the progress of education in the United States.”

Under Chauncey’s leadership—and with encouragement and assistance from the American Council on Education, the Carnegie Foundation for the Advancement of Teaching, and the College Entrance Examination Board—the organization now known as ETS was formed.

“ETS Founder Henry Chauncey believed that testing could help identify talent in people regardless of their circumstances and provide guidance for important life decisions.”

—ETS President Kurt Landgraf

Portraits of Innovation

Frederic M. Lord

is known in psychometric circles as the “Father of Modern Testing.” His pioneering research laid the foundation for much of modern test theory.

E. Aurora Graf

focuses her research on the application of cognitive psychology to the development and interpretation of mathematics assessments. Her recent work explores relationships between cognitive variables and psychometric parameters of quantitative item models.
ETS Today

Nearly sixty years later, ETS is in a class all its own.

Today, ETS is the world’s largest private educational testing and measurement organization and a leader in educational research. A nonprofit organization dedicated to serving the needs of individuals, educational institutions and agencies, and governmental bodies in 180 countries, ETS develops and annually administers more than 24 million tests worldwide. Yet our mission goes far beyond testing alone.

ETS is committed to excellence across six major categories:

• Research and Development (including statistical methodology and psychometrics)
• Assessment Development
• Test Administration, Scoring and Reporting
• Instructional Services and Products
• Technology
• Consulting Services

“The depth and diversity of ETS’s workforce is its greatest asset.”

—Satwinder K. Thind
Lead Research Data Analyst

Portraits of Innovation

Neil J. Dorans
developed a flexible, easy-to-use method for assessing differential item functioning for selected choice and constructed response items. He was also the architect for the recentered SAT I* and SAT II* scales.

Harold O. Gulliksen
wrote the seminal text, *Theory of Mental Tests*, which paired with Frederic Lord’s *A Theory of Test Scores*, led to the development of what we now know as item response theory.
Research at ETS

ETS is the preeminent educational measurement research organization in the world.

Our internationally respected team includes distinguished scientists dedicated to the advancement of quality and equity in education. They do this by improving the quality of existing testing programs, generating new forms of assessment and instruction, and investigating new constructs to measure non-cognitive skills such as creativity, motivation, and practical intelligence to better understand students’ knowledge and abilities.

The Mission of ETS Research & Development is two-fold:

- Drive innovation
- Ensure technical quality and fairness

ETS’s William H. Angoff Memorial Lecture Series was established in 1994 and is devoted to the discussion of public interest issues related to educational measurement.

Portraits of Innovation

Wendy M. Yen

oversees the psychometric quality of ETS’s K-12 assessments. She has served as president of the National Council on Measurement in Education and as editor of the Journal of Educational Measurement.

William H. Angoff

made major contributions to educational measurement and authored some of the classic publications on psychometrics, including the definitive text, *Scales, Norms, and Equivalent Scores.*
The Two Areas of R&D at ETS

Research
ETS has the highest commitment to research of any company operating in the areas of educational assessment, products, and services. In fact, ETS devotes more resources to research than all its competitors combined. Dedicated to the advancement of learning worldwide, ETS has pioneered educational measurement research and analysis, innovative product development, and original policy studies. At the heart of this important work are the ETS research professionals themselves, who partner with independent researchers and government agencies around the world to maintain a fresh, innovative and disciplined approach to research.

ETS is known worldwide for its measurement expertise because much of Research’s work centers on statistical analysis and psychometrics. This work entails providing support to a wide variety of testing programs including admissions, licensing/certification, K-12, and English-language learning tests. Technical expertise is also applied to the development and refinement of statistical and psychometric procedures, the implementation of new technology, and the advancement of the field of educational measurement.

Assessment Development
ETS excels in the test development process. Every test at every level must meet our stringent Standards for Quality and Fairness, which reflect ETS’s strong commitment to openness in testing, public accountability, fairness, sensitivity, and quality. A typical test may be subject to more than two-dozen reviews and quality assurance steps, including pre-testing and field-testing to determine clarity, relevance, and freedom from bias before questions are administered in an operational test.

Portraits of Innovation

Jacqueline Jones
is particularly interested in the development of effective early childhood assessment systems in school districts and comprehensive programs for young children, such as Head Start.

Isaac I. Bejar
is interested in improving methods of testing by incorporating advances in psychometric theory, cognitive psychology, and computer technology. He is the author of Cognitive and Psychometric Analysis of Analogical Problem Solving, and coeditor of Test Theory for a New Generation of Tests.
R&D Opportunities

Take a look at some of the R&D positions that may be available now at ETS.

To learn more, go to www.ets.org/hr

Psychometrician (Measurement Statistician)

These positions involve directing, planning, and conducting statistical activities for large-scale paper and computer-based testing programs. This includes:

- Application of classical test theory and item response theory in support of testing programs
- Designing and conducting psychometric analyses in support of testing programs
- Analyzing and proposing solutions to measurement problems, and communicating those solutions effectively
- Using various statistical analysis software (e.g., SAS, SPSS, BILOG, LOGIST, WINSTEPS, and/or PARSCALE)
- Applying and interpreting psychometric methods such as partial credit models, factor analysis, item analysis, scaling, standard setting, and item calibration

Requirements for a junior-level position

A doctorate (or A.B.D. but must anticipate receiving a doctoral degree within six months of hire) in educational or psychological measurement and statistics, educational psychology, or a closely related field is required. Candidates must have at least one year of experience in educational measurement, applied statistics, or teaching. Experience may be gained through doctoral studies.

Requirements for a mid-level position

A doctoral degree in educational or psychological measurement and statistics, educational psychology, or a closely related field with at least six years of experience in an applied measurement or statistical analysis environment is required.

Requirements for a senior-level position

A doctoral degree in educational or psychological measurement and statistics, educational psychology, or a closely related field with at least six years of experience in an applied measurement or statistical analysis environment is required.

Statistical Assistant/Associate

The position of Statistical Assistant involves entry-level statistical programming and data analysis activities in support of a variety of special projects and operational processes, including:

- Analysis of test questions and tests
- Analysis of scores from both paper-based and computer-based tests
- Research in educational measurements and statistics for ETS testing programs

Statistical Associates are involved in similar kinds of projects and operational processes, but at a more advanced level. Both Statistical Assistants and Statistical Associates are also responsible for varying degrees of non-programming activities, such as assisting in coordinating statistical operations, preparing procedures and documentation, and using ETS proprietary statistical utilities and systems.

Requirements

A bachelor’s degree in mathematics, psychology, statistics, computer science, or a closely related field is required. Experience in using statistical computing environments and tools (e.g., SAS) is also required. Coursework in statistics and computer sciences, knowledge of current information technologies and experience in using computers to perform data analysis are highly desirable.
Data Analyst

The position of Data Analyst involves participating in data analysis activities in support of education-related research projects sponsored by ETS and external clients. Typical duties include:

- Preparation and quality control of research databases
- Developing, modifying, and documenting statistical analysis software
- Carrying out statistical procedures under the direction of senior project staff
- Assisting with interpretation and presentation of analysis results
- Creating original software as well as working with existing ETS-developed modules and commercial software
- Employing Fortran, with ETS’s proprietary statistical system on a variety of platforms including mainframes, PCs and UNIX systems
- Using additional software on occasion such as SPSS, SAS, Excel/Access and S-Plus

Requirements

A bachelor's degree (for entry level) or master's degree (for senior level) in statistics or computer science, or in a related field is required. Strong programming background and coursework in statistics is essential. Expertise in graphics and spreadsheet software and experience in analyzing data using statistical/psychometric techniques is highly desirable.

“Research here doesn’t just go into a journal, it also goes into the field—a one-of-a-kind aspect of working at ETS that is gratifying and exciting.”

—Catherine A. McClellan, Director, Center for Educational Survey Assessment Research

Portraits of Innovation

Paul W. Holland

has made major contributions to the application of statistics to social science research including differential item functioning. His current research includes kernel equating methods and population invariance of test linking.

Martha L. Stocking

pioneered the application of item response theory to psychometric problems such as test design, assembly, scoring and equating. This work led to the development of methods for administering and scoring computerized adaptive tests (CAT).
Research Scientist

The successful candidate will provide scientific and technical skills in conceptualizing, designing, obtaining support for, conducting, and managing complex research studies or projects, and in disseminating the results and implications of research. Other duties include, but are not limited to:

- Generating or contributing to new or modified theories of educational and psychological processes, research methodology, and analytic or interpretative procedures
- Developing proposals for research projects and obtaining financial support for new or continuing research activities
- Designing and conducting complex scientific studies, functioning as an expert in the major facets of projects;
- Responding as a subject matter expert in presenting the results of acquired knowledge and experience
- Consulting and collaborating on problems arising from substantive research and/or testing programs, or corporate management concerns
- Directing and/or participating in research projects involving a variety of management skills for staff assignment and scheduling, monitoring of financial performance and utilization of equipment, facilities and services
- Implementing dissemination activities utilizing various methodologies to reach specific audiences, including through the publication of research papers, progress and technical reports, presentation of seminars, or other appropriate communication vehicles

R&D Opportunities

Frederic Lord’s pioneer research laid the foundation for much of modern test theory. His 1968 text, with Melvin Novick, Statistical Theories of Mental Test Scores, remains the definitive treatment of the observed score test theory popular until that time, and the official beginning of modern item response theory.

PORTRAITS OF INNOVATION

Ledyard R Tucker

is considered one of the major figures in the development of psychology as a quantitative rational science and was the original director of Statistical Analysis at ETS. His statistical practices in testing serve as the foundation for applied testing today.

Alina von Davier

is currently working on the kernel method of equating. Additional work includes linking and equating in programs like SAT®, AP®, and NAEP. She is also interested in investigating and testing causal hypotheses in regression models.
Requirements for a junior-level position
A Ph.D. in a specific discipline (e.g., psychology, cognitive science, education, statistics, etc.) is required. Evidence of independent substantive research experience in an area of interest to ETS is required.

Requirements for a mid-level position
A Ph.D. in a specific discipline (e.g., psychology, cognitive science, education, statistics, etc.) and a record of research and publishing in an area of interest to ETS are required. Three years of progressively independent research experience is necessary.

Requirements for a senior-level position
A Ph.D. in a specific discipline (e.g., psychology, cognitive science, education, statistics, etc.) and a record of research and publishing in an area of interest to ETS are required. Nine years of progressively independent research experience providing evidence of continuing and substantial contributions to a field of study are necessary.

“This is where I need to be. This is what I do. Testing has become central to education, and I like being able to make a difference.”

—Michael E. Walker
Lead Measurement Statistician

PORTraits Of Innovation
Randy E. Bennett
investigates ways technology can improve assessments and envisions future assessment methods. He recently helped conceptualize and carry out three National Assessment of Educational Progress (NAEP) technology-based research studies.

Sandip Sinharay
is currently working on the application of Bayesian hierarchical models to item model calibration, Bayesian model checking, and model selection for models in educational testing.
Assessment Specialist
The position of Assessment Specialist involves developing and/or evaluating tests and testing programs. Responsibilities include, but are not limited to:

• Developing tests in field of specialty
• Writing, reviewing, and revising test questions and testing programs
• Assembling tests or pools of questions to meet specifications
• Working at a high level of knowledge and skill in all phases of test development, including item writing, review and evaluation, test assembly and scoring
• Working independently and as part of a team; may also work with outside experts in field of specialty
• Regularly provides guidance and training to less experienced assessment specialists

Requirements for a junior-level position
Master’s degree in field of specialty or an equivalent combination of education and experience from which comparable knowledge and abilities can be acquired. Three years of increasingly responsible professional experience, including experience in educational measurement, applied statistics, teaching or editing. Comprehensive knowledge of field of specialty in order to develop tests in subject area and to serve as resource person for peers, committees and clients.

R&D Opportunities

Norman Frederiksen was an early proponent of testing and teaching based on problems that reflect real-life situations. His major innovations include the celebrated “in-basket” assessment and training technique now used by corporations and governments throughout the world.

Dylan R. Wiliam
provides intellectual leadership in the area of formative assessment in schools, including requisite attention to the professional development of teachers.

Mary E. Fowles
has focused her research on designing and developing constructed-response assessments, particularly those involving analytical writing. Her current projects include working with teachers in the Middle East on Arabic and English-language assessments.
**Requirements for a mid-level position**

Master’s degree in field of specialty or an equivalent combination of education and experience from which comparable knowledge and abilities can be acquired. At least five years of increasingly responsible professional experience (including educational measurement, applied statistics, or teaching), two of which must be in test development and educational measurement or applied statistics. Mastery of field of specialty in order to develop tests in subject area and to serve as resource person for peers, committees and clients. Also, growing knowledge of testing and measurement.

**Requirements for a senior-level position**

Master’s degree or an equivalent combination of education and experience from which comparable knowledge and abilities can be acquired. At least seven years of progressively responsible professional experience (including educational measurement, applied statistics, or teaching), five of which must be in test development and educational measurement or applied statistics. Mastery of field of specialty, plus extensive knowledge of testing and measurements in order to provide expert advice, serve in a leadership capacity, and represent ETS in professional organizations and the educational community.

“The depth of expertise in measurement at ETS is astonishing.”

—Kathryn L. Ricker

Associate Measurement Statistician

**PORTRAITS OF INNOVATION**

Brent Bridgeman has investigated how factors such as time limits, delivery modes, question formats, gender, race/ethnicity, and disability status affect validity and fairness related to tests like the SAT® I Reasoning Test, the GRE® General Test, and the Advanced Placement® Program.

Frances Swineford was a pioneer in the field of psychometrics. A ferocious defender of integrity and quality in Statistical Analysis, she designed the format of test analysis reports that were a mainstay at ETS for many years.
## ETS Benefits at a Glance

ETS Employees can customize their benefit plans to meet a variety of individual and family needs by selecting as much or as little coverage as they desire.

<table>
<thead>
<tr>
<th>Benefit Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive Starting Pay?</td>
<td>Compensation that matches your skills and responsibility level</td>
</tr>
<tr>
<td>Challenging Work?</td>
<td>Receive challenging assignments immediately</td>
</tr>
<tr>
<td>Opportunities to Excel?</td>
<td>Promotions based on performance, not length of service</td>
</tr>
<tr>
<td>Tuition Assistance?</td>
<td>Up to 100% tuition reimbursement for approved courses or degree programs</td>
</tr>
<tr>
<td>Domestic Partner Benefits?</td>
<td>ETS benefits are available to domestic partners regardless of sexual orientation or marital status</td>
</tr>
<tr>
<td>Retirement Plan? Pension Plan?</td>
<td>Because ETS is a nonprofit organization, we offer the nonprofit equivalent of a 401k plan, the 403b. We also offer an ETS pension plan in which employees are immediately vested.</td>
</tr>
<tr>
<td>Pay for Performance?</td>
<td>Employees may receive individual and group performance rewards</td>
</tr>
<tr>
<td>Competitive Time Off?</td>
<td>Vacation, paid time off days, and holidays</td>
</tr>
<tr>
<td>Relocation Assistance?</td>
<td>Relocation assistance provided for qualified positions</td>
</tr>
<tr>
<td>Employee-friendly Policies?</td>
<td>ETS encourages all employees to balance work and family</td>
</tr>
<tr>
<td>Professional Development?</td>
<td>Each division budget includes continuing professional development</td>
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Put Your Talents to the Test at ETS

We’re searching for people who can help us achieve our goals.

Building a career with ETS means joining a team of diverse, talented and innovative professionals dedicated to serving the educational community and those in need of assessments. Shaped by more than half a century of service, ETS brings people together to guide the world in educational research and assessment. We provide the highest quality products that identify talent, create opportunity for all learners, and, by doing so, serve the public good.

We’re listening to educators, parents and policymakers. We’re learning from sound research. And we’re leading the effort to achieve both informed public policy and informed educational practice.

To learn more about why ETS is the right place to begin—or continue—your R&D career, go to www.ets.org today.

“At ETS you’re on the cutting edge of educational assessment, working for the premier testing company in the world. It doesn’t get any better than that.”

—Alan Shaw, Assessment Specialist II

Porraits of Innovation

Norman “Fritz” Frederiksen

did seminal work on performance assessment, in the measurement of creativity, and on the need to use test formats that reinforced, rather than undermined, instruction.

Xiaoming Xi

has been working on research projects for the TOEFL® Internet-based test and other English-language assessments. Her research focus is on assessing speaking as a second/foreign language.
Did You Know?

Additional Information about ETS that May Interest You

- ETS Research & Development has nearly 600 staff members; more than 150 have doctorates and another 160 hold advanced degrees.

- ETS is headquartered in Princeton, NJ, on 370 acres of lush woodland situated in the heart of NJ’s famous “Research Corridor.”

- ETS ReSEARCHER gives you online access to more than 2,800 research reports by ETS scientists at http://search.ets.org/custres

- ETS is proud to have a culturally diverse workforce; more than 15% of the organization’s Research staff members are from outside the United States.

- ETS offers competitive salaries, outstanding benefits, a stimulating work environment, and attractive growth potential. ETS is an Equal Opportunity, Affirmative Action Employer.

- ETS is conveniently located between New York and Philadelphia.

- There are more than 50 colleges and universities within a 50-mile radius of ETS, including Princeton University, University of Pennsylvania, Drexel University, and Rutgers University.

Portraits of Innovation

Samuel J. Messick

effectively employed the major themes of style and values in integrating two programmatic strands of inquiry — the interrelatedness of personality and cognition in human behavior and the interrelatedness of validity and values in measurement in general.

Patrick C. Kyllonen

is internationally known for his work on the measurement of human abilities, particularly working memory, and learning and skill acquisition, and also personality assessment, computer-based testing, and psychometrics.